Title: SYSTEMS AND METHODS FOR SPECTRAL CORRECTED LIGHTNING DETECTION
Applicant: Martin J. Murphy
Docket No.: 58651.00004 Express Mail No. EV 321219157 US

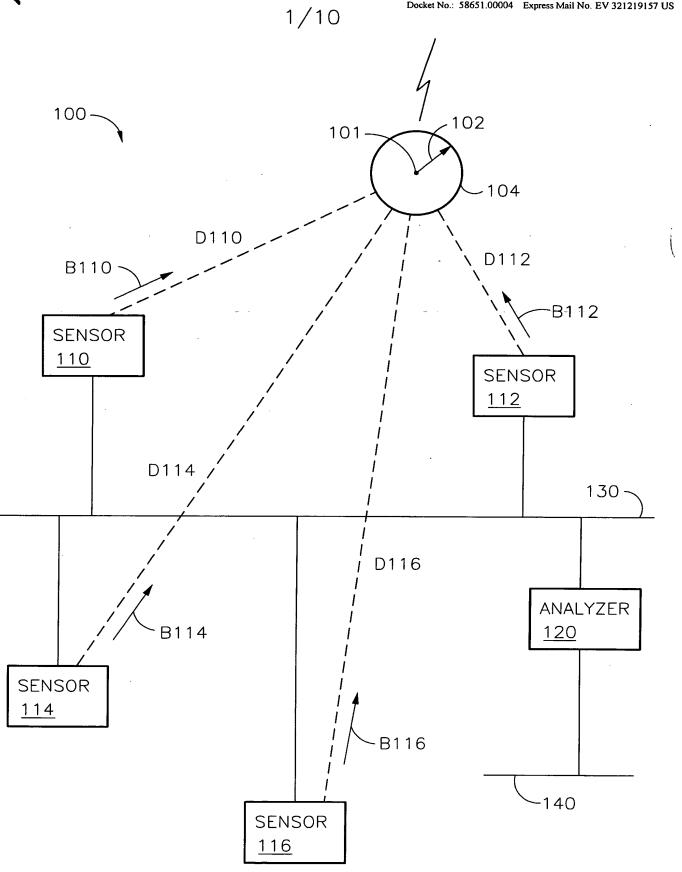
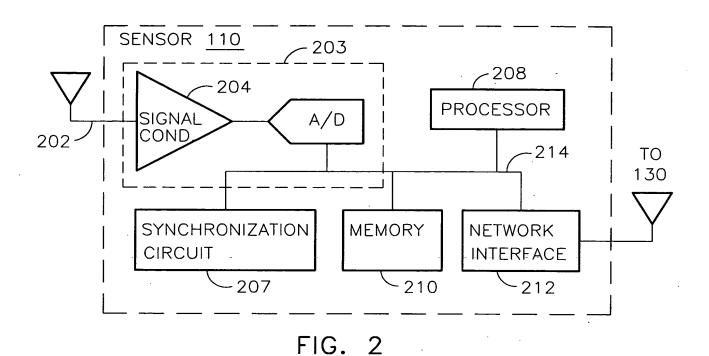


FIG. 1

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ANALYZER 120 TO 130 -302 -304 **NETWORK PROCESSOR INTERFACE** 310 TO 140 **MEMORY NETWORK INTERFACE** ~308 306

FIG. 3

400

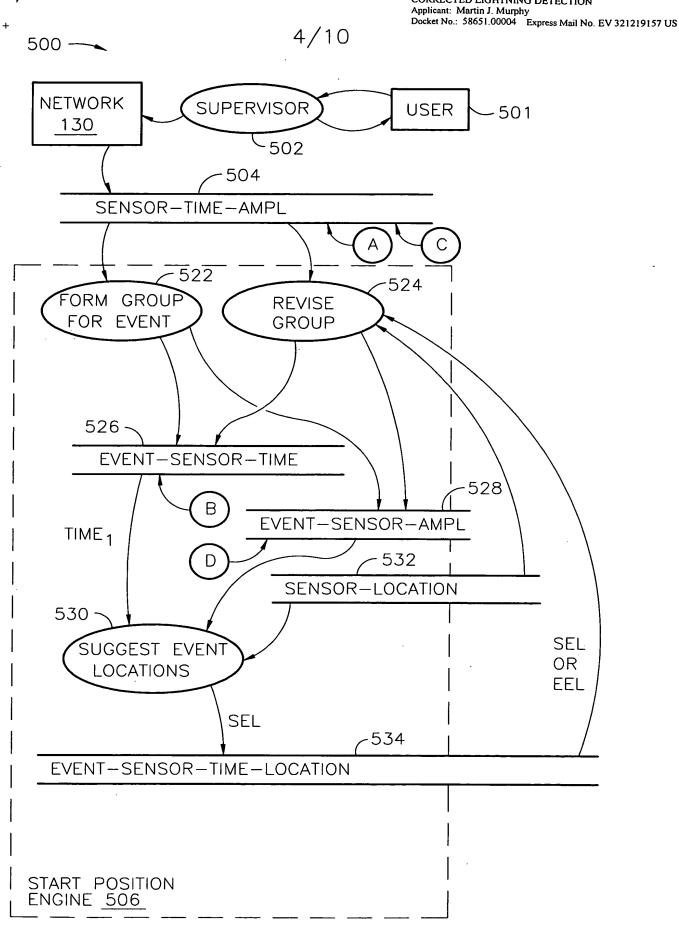


FIG. 5B

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-540 SENSOR-LOCATION-TIME -545 541-APPLY TIME CORRECTION 532 542 SENSOR-544 LOCATION ESTIMATE EVENT SEL LOCATIONS OR EEL TIME₂ SEL EEL 534 -EVENT-SENSOR-TIME-LOCATION LOCATION ENGINE 508

FIG. 5C

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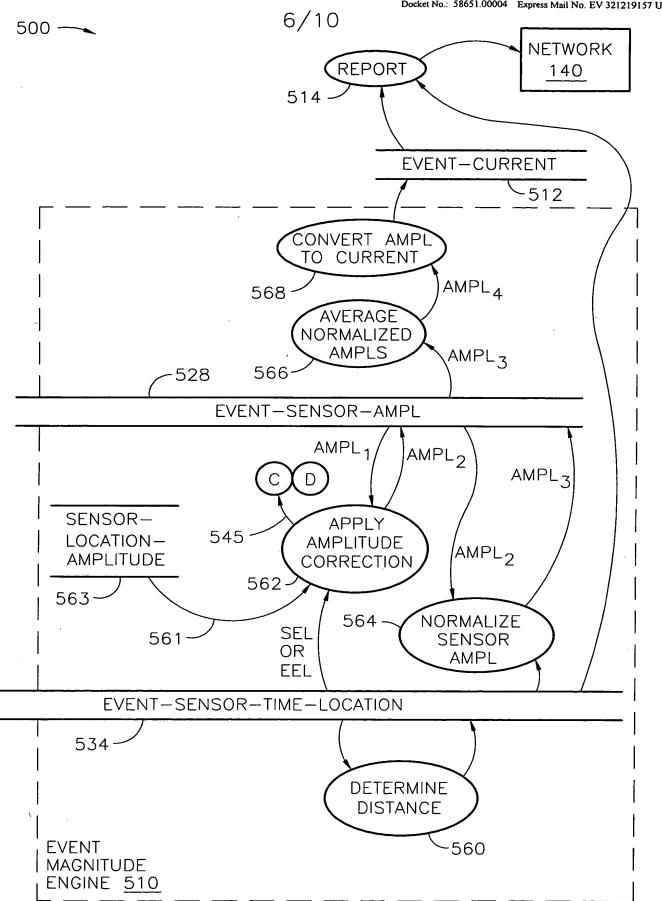
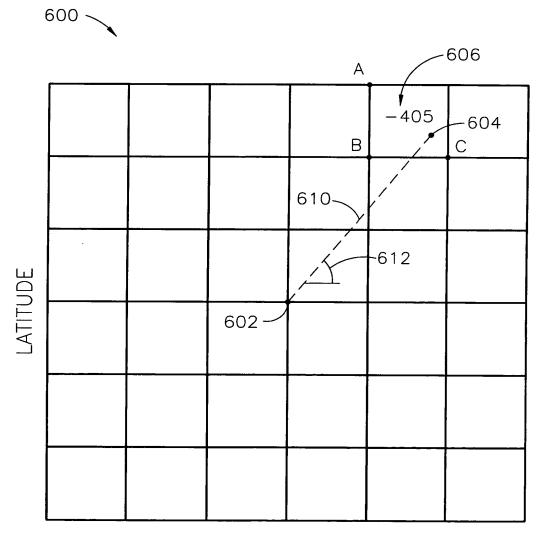


FIG. 5D

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| FIG. 5B | FIG. 5C | FIG. 5D |
|---------|---------|---------|
|---------|---------|---------|

FIG. 5A



LONGITUDE

FIG. 6

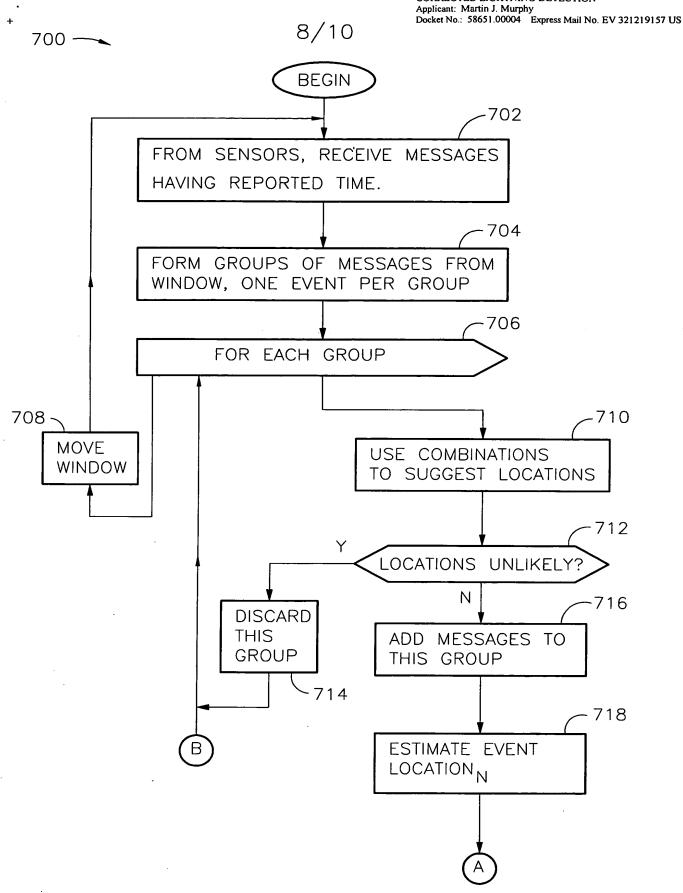


FIG. 7A

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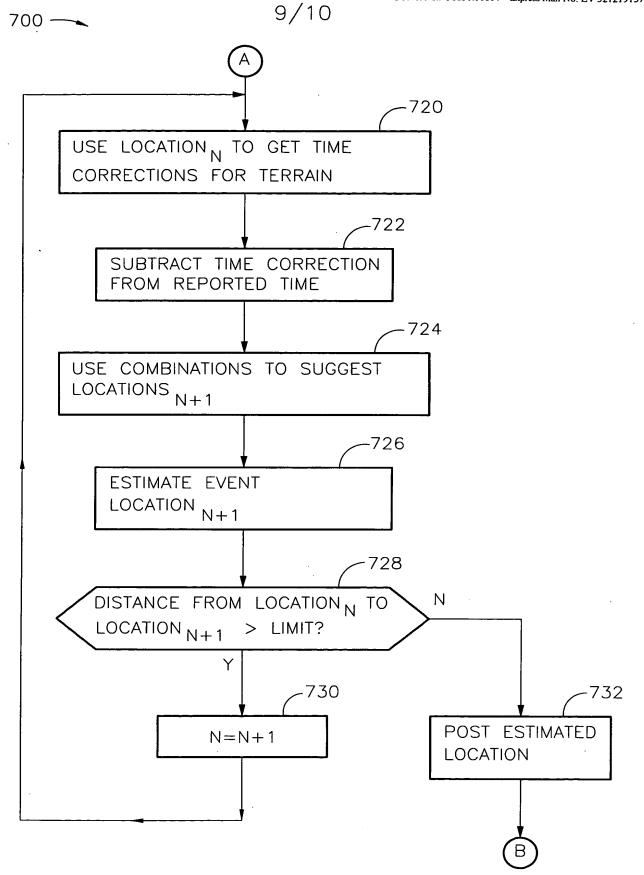


FIG. 7B

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Docket No.: 58651.00004 Express Mail No. EV 321219157 US 10/10 800 ~ **BEGIN** 802 SELECT TIME SAMPLES OF WAVEFORM -804 CREATE FREQUENCY DOMAIN COMPONENTS 1... HAVING MAGNITUDE A[f_1 ... f_N] AND PHASE $P[f_1 ... f_N]$ 806 DETERMINE BREAKPOINT FREQUENCY f -810 DETERMINE CONDUCTIVITY O 812 CREATE FREQUENCY DOMAIN ADJUSTMENTS 1...N HAVING MAGNITUDE $G[f_1 ... f_N]$ AND PHASE $H[f_1 ... f_N]$ -814 ADJUST MAGNITUDES $B[f_b ... f_N] = (A[f]/G[f])|_h^N$ -.816 ADJUST PHASES $Q[f_1 ...f_N] = (P[f] - H[f])_1^N$ -818 CREATE TIME DOMAIN DATA FROM MAGNITUDES A[f_1 ..f_b], B[f_b ..f_N^{.}] AND PHASES Q[f_1 ..f_N] END

FIG. 8